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ABSTRACTS

MEDICINE

Intradermal Hypersensitivity in Systemic Lupus Erythematosus.

J. C. BENNETT AND H. L. HOLLEY: *Arthritis & Rheumat.*, 4: 64, 1961.

The sera of patients with S.L.E. (systemic lupus erythematosus) contain factors producing serological reactions with nucleoprotein histone, whole nuclei and desoxyribonucleic acid (DNA). It was considered that these factors fulfil the criteria of autoantibodies but may represent the "effects" of a basic immunological defect. It was felt that studies of intradermal hypersensitivity against leukocyte homogenates should be carried out in patients with S.L.E.

In studying intradermal testing against leukocytes it was found that 15 of 17 patients with S.L.E. gave positive skin tests, two of 40 patients with rheumatoid arthritis gave positive tests, and tests in various other diseases were negative. Histological sections of positive tests in S.L.E. revealed perivascular aggregations of inflammatory cells and in some cases nuclear degeneration.

The results suggest that a large proportion of patients with S.L.E. develop a marked intradermal reaction when challenged with leukocyte homogenates. This cutaneous reaction offers little in definition of pathogenesis but may suggest a pathway for research toward an understanding of "autoimmune" reactions as they relate to the transfer of cellular hypersensitivity to circulating "autoantibodies". P. S. ROSEN

Familial Incidence of Diabetes Mellitus Among Diabetic Children in Hungary.

L. BARTA: *German M. Month.*, 5: 228, 1960.

The familial incidence of diabetes mellitus was found to be 15.4% among 227 diabetic children, 5.5% among 251 obese but not diabetic children, and 2% among 900 healthy children. The parental incidence of diabetes in the three groups was 2.7%, 2.8% and 0%, respectively. While socioeconomic factors were of importance in determining the manifestation of diabetes in adults, this factor played little role in children.

Total Anomalous Pulmonary Venous Drainage at Cardiac Level. Angiocardiographic Differentiation.

R. D. ROWE, I. H. GLASS AND J. D. KEITH: *Circulation*, 23: 77, 1961.

In six patients with total anomalous pulmonary venous drainage at cardiac level, differentiation between pulmonary veins entering the right atrium and those entering the coronary sinus was possible after selective angiocardiography into the pulmonary artery. The principal feature of the angiocardiogram of the coronary sinus variety is an egg-shaped opacification over the spine within the right atrial contour. In the direct connection of pulmonary veins to the right atrium, the latter chamber may fill promptly after pulmonary venous return, sometimes starting as a circular shadow within the right atrium but never having the ovoid appearance of the coronary sinus variety. S. J. SHANE

Pulmonary Atelectasis Complicating Bronchial Asthma.

H. B. GREENBERG: *Dis. Chest*, 39: 68, 1961.

The author emphasizes that bronchoscopic aspiration and lavage may be of great value in persons suffering from intractable bronchial asthma. Persistence of asthmatic paroxysms in spite of adequate therapy suggests the presence of some complication. Careful physical and roentgenographic examination will often reveal the presence of previously unsuspected atelectasis.

However, bronchoscopy is not without risk. The trauma of the procedure may further increase edema and irritation of the bronchial mucosa. Sensitivity reactions present the greatest hazard. They may be minimized by careful pre-bronchoscopic preparation. Antihistaminics may be used and many of these patients will already be receiving adrenal steroid therapy. Anesthesia should be as light as is compatible with adequate passage of the bronchoscope. Epinephrine may be given intravenously if necessary, at the direction of the bronchoscopist who has the mucosa directly in view. S. J. SHANE

Nodular Glomerulosclerosis: Clinico-Pathological Correlation of 40 Advanced Cases.

G. R. HENNIGAR, R. J. COHEN AND H. P. KATZ: *Am. J. M. Sc.*, 241: 89, 1961.

In a series of 40 cases of advanced diabetic nodular glomerulosclerosis, 19 patients had a history of diabetic acidosis. At no time was there evidence of a diminished insulin requirement in these patients, as suggested in earlier reports. Hypertension was present in 85% of the cases. Marked proteinuria was consistently found in all of the patients. Pathologic changes in the islets could not be correlated with those seen in the glomeruli, nor were they related to the presence or absence of diabetic acidosis. S. J. SHANE

Relationship between the Electrocardiogram and Position of the Heart as Determined by Biplane Angiocardiography.

W. G. GUNTHEROTH, C.-O. OVENFORS AND D. IKKOS: *Circulation*, 23: 69, 1961.

In this study the anatomic position of the heart was determined in 53 patients by selective biplane angiocardiography, and was compared with the mean electrical axis and the location of the transitional zone from conventional electrocardiograms. No significant correlation could be demonstrated between the anatomical axis and the electrical axis in the frontal plane, between the electrical axis and rotation of the heart about its longitudinal axis, or between the location of the interventricular septum and the transition zone of the precordial leads. The electric variations were greater than could possibly be explained by known rotations of the heart about any anatomic axis. The authors emphasize that the degree of rotation about the heart's longitudinal axis assumed in the concept of "electrical positions" is beyond the range found in normal or even in hypertrophied hearts. S. J. SHANE

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SURGERY

Local Treatment of Carcinoma of the Eyelid with a Cytostatic Drug.

A. PILLAT: *Wien. med. Wchnschr.*, 110: 975, 1960 (*German*).

Surgical treatment of carcinoma of the eyelid often produces unsatisfactory cosmetic results and radiotherapy is not without danger as it may cause damage to the lens. This article describes the local treatment of carcinoma of the eyelid with a cytostatic preparation, "Bayer E 39" (2-5-di-ethylen-imino-benzo-quinone) using the following technique: A solution of the drug is injected into the tumour and the underlying tissue on three to four occasions over a period of about two weeks. The resulting necrosis is allowed to heal and if any induration remains palpable the procedure is repeated. This usually requires a total of 5 mg. to 15 mg. of the drug. In rare cases as little as 2 mg. or as much as 40 mg. was used. The drug interferes with the mitotic process of the cell but the small amounts required for local treatment have produced no side effects on the bone marrow.

The author has treated more than 100 patients with good results. This report contains illustrative case histories and photographs before and after treatment. Histological examinations were not carried out in the majority of cases since the tumours are small and it is difficult to deposit enough of the chemotherapeutic agent within them. Taking a biopsy would add to this problem. The author is well aware of this disadvantage, but he feels that epitheliomas can generally be diagnosed clinically with reasonable certainty.

KATHERINE E. RICHTER

Surgical Treatment of Ventricular Septal Defect.

J. W. KIRKLIN, D. C. MCGOON AND J. W. DUSHANE: *J. Thorac. & Cardiovasc. Surg.*, 40: 763, 1960.

These authors present an analysis of 320 consecutive cases of ventricular septal defect in which operation was performed at a large U.S. centre. A low hospital mortality and good results were achieved in older patients with mild or moderate pulmonary hypertension. Early, the mortality was high among infants and among all patients with severe pulmonary hypertension. Refinements in techniques of perfusion, operation, and management produced markedly improved results in these groups.

It is emphasized that good results in patients with severe pulmonary hypertension require a precise surgical technique and careful management after operation. The closure of high defects by direct suture results in a high incidence of complete repairs and a low incidence of heart block. Induced asystole provides excellent exposure and has not seemed to add significantly to the risk of the operation. In the last few years, patients in this category usually have had an uncomplicated course. Occasionally there is evidence of low cardiac output within a short time after perfusion, which should be treated vigorously. Maintenance of proper blood volume, prompt action to correct the metabolic acidosis which usually becomes marked under these circumstances, and digitalization when required, have virtually eliminated this complication as a cause of death.

S. J. SHANE

Trilogy of Fallot

H. SWAN, T. MARCHIORO, S. KINARD AND S. G. BLOUNT: *A.M.A. Arch. Surg.*, 81: 291, 1960.

The authors report on 24 operations that have been carried out on 22 patients with the trilogy of Fallot, during the past eight years. In 11 of these cases, closure of the atrial defect was not attempted. The remaining 11 patients were subjected to the one-stage curative procedure consisting of correction of the pulmonary stenosis and closure of the atrial septal defect. The first patient had closure utilizing two separate periods of unflow occlusion: one for the pulmonary valve and one for the atrial defect. The last 10 patients were treated by operations involving the one-stage multiple-occlusion technique. Three of the 11 patients died during the one-stage curative procedure. These operations were carried out under hypothermia, and open valvuloplasty and open closure of the atrial septal defect were performed. Postoperative data on the eight survivors revealed marked reduction in right ventricular pressures and elevation in arterial oxygen saturation in all patients.

Reviewer's Note

The trilogy of Fallot is less well known than is the tetralogy. There are two useful mnemonics applicable in any large series of patients with congenital heart lesions. Tetralogies may be expected to form about 12% of the total of such lesions while trilogies will constitute about 1.2%. The mnemonic for the tetralogy is "DRIP"—"D" for dextra position of the aorta, "R" for right ventricular hypertrophy, "I" for interventricular septal defect, and "P" for pulmonary stenosis. The mnemonic for the trilogy is "RAP"—"R" for right ventricular hypertrophy, "A" for atrial septal defect and "P" for pulmonary stenosis.

T. A. MCLENNAN

Forgotten Problem of Chronic Empyema.

E. R. MAURER, H. BELLAMAH AND F. L. MENDEZ, JR.: *A.M.A. Arch. Surg.*, 81: 275, 1960.

Regardless of origin, most empyemas are curable. Aggressive and radical surgical treatment will salvage many chronically ill patients. Of 45 patients treated in such a radical manner, 41 were completely cured. Four patients with mixed tuberculous infections never had complete wound healing and two of these died. Four different surgical procedures are described: (1) Complete extirpation of the empyema pocket; for those patients where the empyema pocket has never been subjected to open drainage or where there is a chronic encapsulation that is infected or of unknown etiology. (2) Total thoracoplasty in one stage, with scapulectomy. This is indicated where a previous pneumonectomy has been carried out. (3) Total thoracoplasty, scapulectomy, curettement of the empyema surface, closure of fistula and utilization of residual decostalized chest wall for plastic closure of the bronchus and filling of the empyema. This is indicated in those instances where the decostalized chest wall is very rigid. After extraperiosteal removal of ribs is carried out, the chest wall (which is rigid) is longitudinally incised across the intercostal bundles and relaxing incisions are made peripherally so that the flaps will fall under the pocket. (4) Thoracoplasty, with muscle pedicle flap, following excision and saucerization of the empyema

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pocket with scapulectomy. This is indicated where empyema with or without a bronchopleural fistula has persisted for a long interval. Saucerization implies that no overhanging edges will be left.

The Bovie unit is mandatory in all operations involving excision of the chest wall. Preoperative management is necessary to control infection before surgery. As one would expect, the patients with mixed tuberculous infection did not do as well as those without tuberculosis. T. A. MCLENNAN

THERAPEUTICS

Combined Therapy of Inoperable Lung Carcinoma with 5-Fluorouracil and Irradiation.

F. M. WILLETT, L. V. FOYE, JR., M. ROTH AND B. E. HALL: *Dis. Chest*, 39: 38, 1961.

Sixteen patients with inoperable epidermoid carcinoma of the lung were treated with local orthovoltage x-ray to a tumour dose of 2000 roentgens while receiving 5-fluorouracil. The course of combined therapy required two weeks for completion. Side effects occurred in 11 of 16 patients and included leukopenia, thrombocytopenia, esophagitis and pharyngitis. Marked and rapid regression of the treated tumour mass was observed in every patient. The simultaneous administration of low dosage x-ray and 5-fluorouracil appears to be highly effective in the treatment of epidermoid carcinoma of the lung. The authors suggest that further study of this and other similar therapeutic combinations may materially improve the otherwise dismal prognosis of patients with this disease.

As the writers selected cases with only the most advanced and widespread disease for this preliminary study and treated only those lesions that were objectively measurable, they did not expect to alter significantly the fatal course of the disease in these patients. However, several of the patients are alive and comfortable six months after combined therapy. One patient, whose condition was considered terminal when treatment was undertaken, was ambulatory and symptom-free 12 months later.

Study of Migraine Pharmacotherapy.

A. M. OSTFELD: *Am. J. M. Sc.*, 241: 192, 1961.

The results of this study indicate that in a dose of 5 mg., orally administered ergotamine tartrate was significantly more effective in the treatment of migraine than was a placebo. The 5-mg. dose is larger than that commonly employed. The usual procedure is to administer 2 mg. ergotamine tartrate by mouth, either alone or in combination with other agents, then 1-mg. increments at roughly one-half to one-hour intervals thereafter as needed. In view of the well-known fact that ergotamine is much less effective when given late in the headache period, it seems worth while to administer a single large dose as close to the onset of headache as possible. The principal reason that larger doses have not been employed is the fear of toxic effects. Of such effects the most common are nausea and vomiting. Since the results indicate that the addition of cyclizine to the ergotamine tartrate reduced the frequency of vomiting to a degree only slightly greater than that for placebo-treated migraine, concern over this single aspect of ergotamine toxicity does not seem to be indicated. S. J. SHANE

Clinical Evaluation of Librium in Gastrointestinal Diseases.

C. H. BROWN: *Am. J. Gastroenterol.*, 35: 30, 1961.

Of 90 patients with anxiety and functional gastrointestinal complaints who were given methaminodiazapoxide HCL (Librium) (average dose 10 mg. four times daily), the majority had a good response. Results were particularly good in alcoholics with cirrhosis of the liver and in patients with the post-gastrectomy syndrome. The side effects necessitated discontinuing the drug in five patients, while another six complained of loss of libido, ataxia, dizziness and sleepiness.

Symptomatic improvement was good to excellent in cases of irritable colon and functional stomach distress and in abdominal parietal pain. Two cases of globus hystericus responded well.

It is suggested that further studies employing the double-blind technique in patients with anxiety and gastrointestinal distress should be carried out with Librium. W. GROBIN

RADIOLOGY

An Easily Sterilized Film for Radiography of the Exposed Kidney.

J. H. E. CARMICHAEL AND R. MARCUS: *Brit. J. Radiol.*, 34: 136, 1961.

The simple procedure of radiographing the exposed kidney during removal of calculi to locate possible residual stones or fragments, or to save a kidney from unnecessary mutilation, has never been as widely used as perhaps it should. This has been due in large measure to the impossibility of sterilizing the film and the difficulty in handling standard cut film.

A specially shaped film with a cut-away for the renal pedicle has been produced. This film is contained in a light-tight polythene cover which renders it simple to sterilize and easy to use. It is manufactured by the Kodak Co. K. E. HODGE

Review of the Causes of Rib-Notching with a Report of an Unusual Case.

W. WILSON: *Brit. J. Radiol.*, 33: 765, 1960.

Although coarctation of the aorta remains by far the most common abnormality associated with rib-notching, many other conditions may be responsible for this finding.

Other vascular lesions may be the cause. These include obstruction to the subclavian or innominate arteries by thrombosis or operation (Blalock), increased systemic blood supply to the lungs in pulmonary oligemia (pulmonary stenosis and Fallot's tetralogy), systemic supply to a pulmonary arteriovenous fistula, conditions causing increased pulse pressure (arteriosclerosis or hypertension), superior vena cava obstruction, or arteriovenous fistulae of the intercostal vessels.

Some cases of rib-notching may be caused by neurofibromata of the intercostal nerves.

It may also be idiopathic, with no demonstrable cause. Appearances resembling rib-notching have been reported to be due to irregular cortical thickening in tuberous sclerosis.

A case of unilateral rib-notching associated with a pulmonary arteriovenous fistula in a 39-year-old man is reported. K. E. HODGE

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Angiocardiography in Bullous Emphysema.

K. M. JENSEN, L. MISCALL AND I. STEINBERG: *Am. J. Roentgenol.*, 85: 229, 1961.

Angiocardiography, by revealing the pulmonary vasculature, discloses the patterns of generalized and bullous emphysema.

Although cardiopulmonary and bronchospirometric evaluation is useful in clarifying functional deficits, differentiation between symptoms primarily due to bullous emphysema and those primarily due to generalized emphysema cannot always be achieved by such studies.

Angiocardiography becomes important in these circumstances and may be useful in selecting cases likely to be helped by surgical removal of cysts and bullae.

Eight illustrative cases are described; various surgical procedures successfully employed in the treatment of five with bullous emphysema are discussed.

K. E. HODGE

BIOLOGICAL RESEARCH

Some Delayed Effects of Atom Bomb Radiations in Mice.

A. C. UPTON, A. W. KIMBALL, J. FURTH, K. W. CHRISTENBERRY AND W. H. BENEDICT: *Cancer Res.*, 20: No. 8, Part 2, September 1960.

Male and female (C57L X A/He) F_1 mice surviving instantaneous exposure to ionizing radiation from an experimental nuclear detonation were observed until natural death for delayed effects of irradiation. Among the effects observed was shortening of the lifespan, which varied with the radiation dose. The shortening of life was not attributable to increased mortality from any specific cause but was correlated with premature onset of all diseases associated with natural senescence.

Although the effects of radiation on the incidence and severity of diseases of old age varied markedly from one disease to another, all diseases were advanced in onset to essentially the same extent by any one dose of radiation, with the exception of thymic lymphoma. The onset of thymic lymphoma was hastened considerably more than that of any other disease, particularly in heavily irradiated mice, which also had an elevated incidence of this neoplasm. There was no consistent over-all relation between the frequency of neoplasia and the radiation dose. The incidence of certain neoplasms (thymic lymphoma, adenocarcinoma of mammary gland, pituitary adenoma, adrenal adenoma, Harderian gland adenoma, hepatoma, ovarian tumour, and granulocytic leukemia) was increased by irradiation, whereas the incidence of others (pulmonary adenoma, mammary gland sarcoma, non-thymic lymphoma) was decreased. In no instance was there a linear relation between tumour incidence and dose. Most neoplasms were less common after large doses of radiation than after intermediate doses, suggesting that neoplasia was inhibited by excessive radiation injury.

Depigmentation of the hair, which was detected as early as three months after irradiation, progressed at a rate and to an extent that varied with the dose, but it was not observed in lightly irradiated mice or in the controls. Cataract of the optic lens, which was also noted within 90 days of irradiation, progressed at a rate and to an extent that varied with dose. The radiation cataracts differed in location from the opacities occurring spontaneously in senile controls. Atrophy of the iris, which developed spontaneously in senescent controls, occurred prematurely in irradiated mice and progressed in severity with the dose. Radiation nephritis, or nephrosclerosis, was common in mice receiving more than 400 rad but was rare below this dose level. In a few mice with advanced nephrosclerosis, polyarteritis was noted in the kidney and elsewhere.

Miscellaneous infectious and inflammatory lesions, which were relatively rare in controls, were not increased in frequency by irradiation. Subcapsular ovarian cysts and hydrometra, which were relatively common in ageing controls, were reduced in incidence in irradiated females, possibly through sterilization of the ovary. Loss of incisor teeth occurred in a relatively high proportion of ageing males and was nearly 10 times as common in males as in females. Its frequency was not significantly affected by irradiation.

For most of the effects observed, neutrons were more effective than gamma rays. Because, however, of uncertainties in dosimetry and the relatively small numbers of neutron-exposed animals, precise estimation of the relative effectiveness cannot be made from the results of this experiment.

PUBLIC HEALTH

Tularemia of the Typhoid Type in an Austrian Epidemic.

F. PUNTIGAM: *Wien klin. Wchnschr.*, 72: 813, 1960 (*German*).

In an Austrian sugar factory 795 of 1028 employees became ill between November 1959 and January 1960 with the following symptoms: high fever, which often showed a biphasic course, severe chest pain, headaches, night sweats and general malaise. In some patients meningeal signs, herpangina and erythema exudativum multiforme were observed. Chest x-rays revealed enlarged hilar shadows and atypical pneumonias. The white blood counts were elevated to about 10,000 per c.mm., and the sedimentation rates were increased.

At first a virus infection was considered as the possible cause of this outbreak, but laboratory investigation did not bear this out. Later, tularemia was suspected, and when agglutination tests were done on 710 of the patients, 79% showed a titre of more than 1:50.

Public health authorities carried out extensive investigations to determine the cause for this unusual outbreak of tularemia. The field mouse is regarded as the reservoir for *Pasteurella tularensis* in that area. It was learned that in 1959 mice had multiplied enormously. Multitudes of these rodents had been observed to escape from the piles of sugar beets on the fields as they were loaded for the factory. It is probable that some dead mice were among the sugar beets and got into the machines that wash and cut the beets. Droplets of the contaminated water may have been responsible for the human infections. Unfortunately the water could not be examined, for the process of washing and cutting was finished when tularemia was first suspected. Further studies of the animal reservoirs and the exact mode of transmission will be necessary before protective measures for these workers can be devised.

KATHERINE E. RICHTER